Listing and Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the Application:

1. (previously presented) A method for supporting an interworking between a Wireless Local Area Network (WLAN) and a mobile communications system, the mobile communications system having a first Support Node for interfacing a radio access network to a core network and a second Support Node for interfacing the mobile communications system to a second communications system, the method comprising the steps of:

providing an interworking function (IWF) associated with the WLAN and coupled to the mobile communications system;

establishing at least one Tunneling Protocol – User plane tunnel between the IWF and the second Support Node for transferring data signals; and

establishing at least one Tunneling Protocol – Control plane tunnel between the first Support Node and the second Support Node for transferring control signals.

2. (previously presented) The method of claim 1, wherein the mobile communications network comprises a UMTS network, the first Support Node comprises a Serving General Packet Radio Service (GPRS) Support Node (SGSN), the second Support Node comprises a Gateway GPRS Support Node (GGSN), the Tunneling Protocol - User plane tunnel comprises a GPRS Tunneling Protocol - User Plane (GTP-U) tunnel, and the Tunneling Protocol - Control Plane tunnel comprises a GPRS Tunneling Protocol - Control Plane (GTP-C) tunnel.

3. (original) The method of claim 2, wherein the IWF is configured as a logical SGSN with respect to the data signals.

4. (previously presented) The method of claim 2, wherein said step of establishing the at least one GTP-U tunnel comprises the step of defining a GTP tunnel in a GTP-U for at least one Packet Data Protocol (PDP) context in at least one of the GGSN and the IWF.

5. (previously presented) The method of claim 2, wherein said step of establishing the at least one GTP-C tunnel comprises the step of defining a GTP tunnel in a GTP-C for at least one Radio Access Bearer (RAB).

6. (previously presented) The method of claim 2, wherein said step of establishing the at least one GTP-C tunnel comprises the step of defining a GTP tunnel in a GTP-C for at least one Packet Data Protocol (PDP) context with a same PDP address and Access Point Name (APN) for tunnel management messages.

7. (original) The method of claim 2, wherein a GTP-C carries GPRS mobility management functions.

8. (original) The method of claim 2, further comprising the step of providing access to both the WLAN and the mobile communications system through a single point of attachment consisting of the GGSN.

9. (previously presented) The method of claim 2, wherein the Core Network includes, the GGSN and the SGSN, and the method further includes the step of maintaining a connection between a User Equipment (UE) and the CN while diverting data to the UE through the at least one GTP-U tunnel between the GGSN and the IWF.

10. (previously presented) The method of claim 2, wherein the mobile communications network comprises a Radio Network Controller (RNC) and the IWF is disposed on a WLAN side of the interworking, and the step of establishing the at least one GTP-U tunnel couples the IWF of the WLAN to the GGSN of the mobile communications network while bypassing the RNC and the SGSN of the mobile communications network.

11. (previously presented) The method of claim 2, further comprising the steps of:

authenticating a User Equipment (UE) by the mobile communications network;

communicating a result of said authenticating step to the IWF through the GGSN.

12. (previously presented) The method of claim 2, further comprising the steps of:

registering a WLAN coverage area as a different Routing Area (RA) with the mobile communications network; and

specifying an IWF address and Tunnel Endpoint Identifiers (TEIDs) for said step of establishing the at least one GTP-U tunnel, when one of a Packet Data Protocol (PDP) request of a modify PDP request is received from a User Equipment (UE).

13. (previously presented) The method of claim 2, further comprising the steps of:

employing the GGSN as a Foreign Agent (FA) to handle UE mobility; and

informing the SGSN to establish the at least one GTP-U tunnel.

14. (original) The method of claim 2, further comprising the step of employing encryption used by the mobile communications network for a user connecting to the WLAN.

15. (previously presented) An apparatus for supporting an interworking between a Wireless Local Area Network (WLAN) and mobile communications network, the mobile communications network having a first Support Node for interfacing a radio access network to a core network and a second Support Node for interfacing the mobile communications system to a second communications system, the interworking being facilitated by an InterWorking Function (IWF), the apparatus comprising:

means for establishing at least one Tunneling Protocol – User plane tunnel between the IWF and the second Support Node for transferring data signals; and

means for establishing at least one Tunneling Protocol – Control plane tunnel between the first Support Node and the second Support Node for transferring control signals.

16. (previously presented) The apparatus according to claim 15, wherein the first Support Node comprises Serving General Packet Radio Service (GPRS) Support Node (SGSN), the second Support Node comprises Gateway GPRS Support Node (GGSN), the Tunneling Protocol – User plane tunnel comprises a GPRS Tunneling Protocol – User plane (GTP-U) tunnel, and the Tunneling Protocol – Control plane (GTP-C) tunnel.

17. (original) The apparatus of claim 16, wherein the IWF is configured as a logical SGSN with respect to the data signals.

18. (previously presented) The apparatus of claim 16, wherein said means for establishing the at least one GTP-U tunnel comprises means for defining a GTP tunnel in a GTP-U for at least one Packet Data Protocol (PDP) context in at least one of the GGSN and the IWF.

19. (previously presented) The apparatus of claim 16, wherein said means for establishing the at least one GTP-C tunnel comprises means for defining a GTP tunnel in a GTP-C for at least one Radio Access Bearer (RAB).

20. (previously presented) The apparatus of claim 16, wherein said means for establishing the at least one GTP-C tunnel comprises means for defining a GTP tunnel in a GTP-C for at least one Packet Data Protocol (PDP) context with a same PDP address and Access Point Name (APN) for tunnel management messages.

21. (original) The apparatus of claim 16, wherein a GTP-C carries GPRS mobility management functions.

22. (original) The apparatus of claim 16, further comprising means for providing access to both the WLAN and the mobile communications network through a single point of attachment consisting of the GGSN.

23. (new) A mobile terminal, comprising:

means for forwarding an associate request to an access point of a wireless local area network;

means for receiving an associate response from said access point of said wireless local area network;

means for registering a wireless local area network coverage area as a new routing area;

means for establishing data communications between said mobile terminal and a gateway general packet radio service (GPRS) support node via an inter-working function; and

means for establishing signaling communications between said mobile terminal and a gateway general packet radio service (GPRS) support node via a universal mobile telecommunications system (UMTS) terrestrial radio access network and a serving GPRS support node.

24. (new) The mobile terminal according to claim 23, wherein said means for registering a wireless local area network coverage area as a new routing area comprises forwarding a packet data protocol context request to said serving GPRS support node.

25. (new) The mobile terminal according to claim 23, wherein said means for registering a wireless local area network coverage area as a new routing area comprises forwarding a modify packet data protocol context request to said serving GPRS support node.

26. (new) The mobile terminal according to claim 24, wherein said means for registering a wireless local area network coverage area as a new routing area further comprises means for receiving a packet data protocol context accept response from said serving GPRS support node.

27. (new) The mobile terminal according to claim 24, wherein said means for registering a wireless local area network coverage area as a new routing area further comprises receiving a modified packet data protocol context accept response from said serving GPRS support node.